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DOE ID NO. GJ-44367-CC (PHASE F)

APPENDIX A

RADIOLOGICAL ASSESSMENT FOR

DOE ID NO. GJ-44367-CC (PHASE F)

DENVER & RIO GRANDE WESTERN RAILROAD

Revised: August 23, 1991

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EXECUTIVE SUMMARY

1.0 INTRODUCTION

This property is Phase F of DOE ID number GJ-44367-CC (Denver & Rio Grande Western Railroad) located west of 7th Street.

Following procedures described in the *Field Assessments Procedures Manual*, data were collected on this property and assessed to estimate the location of residual radioactive material in excess of the Environmental Protection Agency (EPA) 'Standards for Remedial Action at Inactive Uranium Processing Sites' (40 CFR 192).

This property has been included for remedial action by the Department of Energy on the basis of Oak Ridge National Laboratory's identification of excess radium-226 concentration in the land area.

2.0 GAMMA EXPOSURE-RATE SURVEYS

2.1 Exterior

The area backgrounds are 15 μ R/h and 3.7 pCi/g. The high exterior gamma exposure rate is 615 μ R/h. Areas of elevated exterior gamma exposure rates are shown in Figure 1, and in Figures 2a through 2f.

2.2 Interior

Not applicable; no habitable structures are included with this property.

3.0 RADON/RADON DECAY-PRODUCT CONCENTRATION (RDC)

Not applicable; no habitable structures are included with this property.

4.0 EXTENT OF CONTAMINATION

4.1 Exterior

Figures 2a through 2f show the locations and types of explorations and radium measurements made; the related radium data are listed in Tables 1a through 1f. The maximum radium concentration in the contaminated area is 2,338.6 pCi/g.

Figures 3a through 3f show the estimated boundaries and depths of exterior contamination. The deposits containing identified residual radioactive materials are characterized as follows:

In the concrete aggregate of the slab, beneath the asphalt, in the bare soil areas, and in the roadbase/gravel fill areas.

4.2 Interior

Not applicable; no habitable structures are included with this property.

5.0 REMEDIAL ACTION RECOMMENDATIONS

5.1 Exterior

Exterior Deposits A through BH (Figures 3a through 3f) should be removed and the appropriate cover material replaced.

5.2 Interior

Not applicable; no habitable structures are included with this property.

6.0 COMMINGLED WASTE INVESTIGATION

A commingled waste investigation was performed for Phase F at this property; see the Appendix B for additional information.

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Revised: August 23, 1991

TEAM LEADER NOTES

DOE ID NUMBER: GJ-44367-CC (Phase F)

SURVEY DATE: October 12, 1990

TEAM LEADER: Steven G. Baker

Owner: Denver & Rio Grande Western Railroad

Contact: Dennis Fordham (Train Master) Telephone Number: (303) 248-4225

Underground utility lines located during the assessment are shown on the drawings.

Contamination involving Deposits A, B, and G (Figure 3a) lies beneath the 1-inch-thick to 3-inch-thick asphalt. Contamination involving the 3-inch-thick concrete in Deposit A does not extend beneath it.

A concrete slab located southwest of Building 2 (Deposit B) is partially buried beneath approximately 4 inches of contaminated soil. The concrete itself is not contaminated, nor does contamination extend beneath it.

A contaminated piece of pipe was discovered lying on the concrete slab between Deposit AA and Deposit G (Figure 3a). This pipe exhibited gamma readings up to 65 μ R/h (Figure 2a); the pipe was not removed from the property.

The area noted as 'No-Access' involves stacked pallets of cinder blocks that are beginning to fall over. Due to the unsafe condition of these stacks, a gamma scan was not performed between the stacks; however, the gamma scan that was performed around the stacks and on the north side of the fence detected no elevated gamma readings.

The foundation of the one-story metal building (Figures 3c and 3d) was investigated for contaminated concrete. Data collected indicate no contamination involving the concrete

TEAM LEADER NOTES
GJ-44367-CC (Phase F)
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foundation. Tailings from adjacent exterior deposits (Deposit P [Figure 3c], Deposit Z [Figure 3d], and Deposits AB and AC [Figure 3d]) do not extend beneath the footing of the metal building.

Deposits O and Q (Figure 3c), and Deposits Y through AL (Figures 3d through 3e) involve the salvage yard of Lewis Iron and Steel. These areas all have miscellaneous salvaged metal scrap lying in the deposits.

As per the Denver & Rio Grande Western Railroad and Chem-Nuclear Geotech requirements, no subsurface investigations were performed within 10 feet of any railroad tracks.

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Table 1a

Radium Concentrations at Exterior Locations Denver & Rio Grande Western Railroad (Phase F)

Page 1 of 33 DOE ID #GJ-44367-CC West of 7th Street

DOE ID #GJ-44367-CC				West of 7th Street				Page 1 of 33
		: = = = = = =	.=====		(pCi/g)		Alpha	626
Loc #	Grid Location	-	Meas. Type			Working Level		Comments
1	111310	00	DS	4.7				Soil
		03 06	TC TC	4.2 4.3	4.2			DC = 6 inches
		09	TC	4.5	4.1 4.9			DC - 0 Inches
		12	TC	4.5	4.3			
		15	TC	4.6	4.4			•
		18	TC	4.8	5.2			
		21	TC	4.8	4.6			
		24	TC	4.9	5.1		,	
		27	TC	4.9	5.1			
		30	TC	4.8	4.6			
		33	TC	4.8	4.8			
		36	TC	4.8	4.8			
2	111400	00-06	ОС	4.1				NAG-134
		00	DS	3.0				Soil
		03	TC	4.2	4.2			
		06	TC	4.7	5.4			DC = 0 inches
		09	TC	4.8	5.0			
		12	TC	4.8	5.2			
		15 18	TC TC	4.6 4.5	4.4 4.3			
		21	TC	4.5	4.5			
		24	TC	4.5	4.7			
		27	TC	4.4	4.0			
		30	TC	4.5	4.7			
		33	TC	4.5	4.5			
3	120240	00-06	ос	3.9				NAG-039
		00	D\$	4.7				Soil
		03	TC	3.7	3.7			
		06	TC	3.8	3.4			DC = 0 inches
		09	TC	4.1	4.3			
		12	TC	4.3	3.8			
		15	TC	4.8	5.5			
		18	TC	4.9	4.9			
		21	TC	5.0	5.4			
		24 27	TC TC	4.9 4.8	4.9			
		30	TC	4.8	4.6 5.3			
		33	TC	4.5	4.5			
4	120380	00-06	СC	4.1				NAG-133
_		00	DS	3.5				Soil
	E8======	======		=======	:			























